

All Regional Engineers

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Special Provision for Illuminated Sign

April 22, 2005

This special provision was developed by the Bureau of Operations to provide statewide requirements for light emitting diode (LED) illuminated signs. At the same time, the requirement for fluorescent illuminated signs have been removed as this type of sign is no longer being used.

This special provision should be inserted into all contracts involving LED illuminated signs.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 5, 2005 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 22, 2005.

80147m

ILLUMINATED SIGN (BDE)

Effective: August 1, 2005

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

“The warranty for light emitting diode (LED) modules, including the maintained minimum luminance, shall cover a minimum of 60 months from the date of delivery.”

Revise Article 891.01 of the Standard Specifications to read:

“**891.01 Description.** This work shall consist of furnishing and installing an illuminated sign.”

Revise Article 891.03 of the Standard Specifications to read:

“**891.03 Basis of Payment.** This work will be paid for at the contract unit price per each for ILLUMINATED SIGN, FIBER-OPTIC or ILLUMINATED SIGN, LED.”

Revise Article 1084.05 of the Standard Specifications to read:

“**1084.05 Illuminated Sign.** The illuminated sign shall conform to the following.

- (a) Housing. The sign housing shall be made of extruded aluminum alloy with a minimum thickness of 1.55 mm (0.063 in.). All corners and seams shall be heli-arc welded and weatherproof. Doors shall be made of 3.175 mm (0.125 in.) thick extruded aluminum with a 4.763 mm x 25.4 mm (0.188 in. x 1 in.) neoprene gasket and sun hood. Hinges shall be continuous full-length stainless steel. Drainage shall be provided by four drain holes at the corners of the housing. The housing shall have stainless steel hardware and provide tool free access to the interior.

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of yellow enamel. The painting shall be according to Section 851.

- (b) Sign Display. The lens panel shall be 3.1 mm (1/8 in.) \pm 10 percent in thickness and shall be made of Plexiglas or other plastic material with equivalent or better weathering, structural, and optical properties. Colors and size of the legend, background, and letters used in the legend shall conform to the MUTCD. Turn prohibition signs shall be according to MUTCD “R3-1” or “R3-2”.

When illuminated, the message shall be legible and highly visible within a 15 degree cone centered about the optic axis under any ambient light condition. When the sign is

not illuminated, the sign display shall blank-out such that no symbol can be seen under any ambient light condition.

(c) Illumination. Illumination for the sign shall be as follows.

- (1) Fiber-Optic. The fiber-optic sign shall consist of fiber-optic glass bundles arranged to define the required message. The glass bundles shall be ground smooth and optically polished at the input and output ends for maximum light transmission. The output ends of the fiber-optic glass bundles that form the sign message shall be terminated using glass lenses or glass end caps.

The fiber-optic sign shall control the lamp intensity utilizing the photo control according to Article 1078.01(c)(2)d. The lamp intensity control device shall be wired in series with the step-down transformers in the sign on the input (120 VAC) side of the transformer. The lamp intensity control device shall be mounted in the bottom of the sign housing. Each fiber-optic sign shall have a separate lamp intensity control device. The lamps shall have a rated minimum life of 5,000 hours.

- (2) Light Emitting Diode (LED). The LED sign shall consist of standard T-13/4 (5 mm) LED lamps and have an expected lamp life of 100,000 hours. Operating wavelengths shall be Red - 626 nm, Amber - 590 nm, and Bluish/Green - 505 nm. The luminance shall be a minimum of 3,700 candelas/sq m when measured normal to the plane of the icon surface under standard operating conditions. The LEDs shall not be aluminum gallium arsenide (AlGaAs) material technology. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from -37 °C to +75 °C (-35 °F to +165 °F).

The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

- (d) Mounting Bracket. The mounting bracket shall be according to Article 1078.01(f), except no terminal compartment will be required.

- (e) Warranty. The LED modules shall be warranted according to Article 802.03. The luminance maintained throughout the warranty period under the operating temperature and voltage ranges shall be a minimum of 3,700 candelas/sq m."